INTERNATIONAL JOURNAL OF RADIATION ONCOLOGY BIOLOGY•PHYSICS

Volume 19, 1990
List of Contents/Author Index/Subject Index

PERGAMON PRESS
NEW YORK OXFORD BEIJING FRANKFURT SÃO PAULO SYDNEY TOKYO TORONTO

Announcement of ASTRO Research Fellowships

The American Society for Therapeutic Radiology and Oncology Education and Development Fund, a separately incorporated fund associated with the American Society for Therapeutic Radiology and Oncology, is accepting applications for one-year research fellowships. The fellowship period will begin each year on July 1st. Successful candidates have the option of taking a one year sabbatical during residency or immediately following completion of residency. **THIS AWARD IS NOT TO SUBSIDIZE A YEAR OF RESIDENCY.**

AWARD

Each award is in the amount of $20,000. The number given is dependent on the funds available.

BASIC ELIGIBILITY CRITERIA:

1. Junior membership in ASTRO.
2. U.S. or Canadian citizenship by birth or naturalization, or permanent residency.
3. Two years of postgraduate training, at least one of which is in radiation oncology.
4. Nomination by an institution with a well-defined program of research.
5. An interest in an academic research environment.

For complete details and an application form, please contact:

Frances H. Glica, Executive Secretary
Astro Education and Development Fund
1101 Market Street, Suite 1400
Philadelphia, PA 19107
(215) 574-3185

Editorial Office: Division of Radiation Oncology, Strong Memorial Hospital, 601 Elmwood Avenue, Rochester, NY 14642, U.S.A.

Publishing, Subscription and Advertising Offices: Pergamon Press, Inc., Maxwell House, Fairview Park, Elmsford, New York 10523, USA; and Pergamon Press plc Headington Hill Hall, Oxford OX3 0BW, England.

Published Monthly. *Annual institutional subscription rate* (1991): US$950.00; *Two-year institutional subscription rate* (1991/92): US$1805.00; *Personal subscription rate* for those whose library subscribes at the regular rate (1989): US$115.00. Active members of the American Society for Therapeutic Radiology and Oncology receive the Journal as part of their membership—contact the ASTRO Membership Services, 1891 Preston White Drive, Reston, VA 22091, USA, tel. (703) 648-8900. Sponsoring Member rate (1989): US$103.00 paid directly to Pergamon, for members of the International Society of Radiation Oncology or Circulo de Radioterapeutas Ibero-Latin-americanos. Prices are subject to change without notice. Notify 8 weeks in advance of address change with a copy of the subscription mailing label.

Back Issues: Back issues of all previously published volumes, in both hard copy and on microform, are available direct from Pergamon Press offices.

Reprints of all articles are available from Pergamon Press in lots of 50, minimum order 100 copies. Call for details.

Copyright © 1990 Pergamon Press plc.

It is a condition of publication that manuscripts submitted to this journal have not been published and will not be simultaneously submitted or published elsewhere. By submitting a manuscript, the authors agree that the copyright for their article is transferred to the publisher if and when the article is accepted for publication. The copyright covers the exclusive rights to reproduce and distribute the article, including reprints, photographic reproductions, microform or any other reproductions of similar nature and translations. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, electrostatic, magnetic tape, mechanical, photocopying, recording or otherwise, without permission in writing from the copyright holder.

Photocopying information for users in the U.S.A. The Item-Fee Code for this publication indicates that authorization to photocopy items for internal or personal use is granted by the copyright holder for libraries and other users registered with the Copyright Clearance Center (CCC) Transactional Reporting Service provided the stated fee for copying, beyond that permitted by Section 107 or 108 of the United States Copyright Law, is paid. The appropriate remittance of $3.00 per copy per article is paid directly to the Copyright Clearance Center Inc., 27 Congress Street, Salem, MA 01970.

Permission for other use. The copyright owner's consent does not extend to copying for general distribution, for promotion, for creating new works, or for resale. Specific written permission must be obtained from the publisher for copying. Please contact the Subsidiary Rights Manager, Publishing Services Dept. at either Pergamon Press plc. or Pergamon Press Inc.

The Item-Fee Code for this publication is: 0360-3016/90 $3.00 + .00.

Disclaimer–The American Society for Therapeutic Radiology and Oncology assumes no responsibility for the accuracy of any editorial material contained in this Journal, and such editorial material does not represent official policy or recommendations of the Society. The appearance of advertising in this Journal does not constitute a guarantee or endorsement by the Society of the quality or value of any advertised products or services or of the claims made for them by the advertisers.

INTERNATIONAL JOURNAL OF RADIATION ONCOLOGY, BIOLOGY, PHYSICS (ISSN 0360-3016). Second-class postage paid at Elmsford, NY and additional mailing offices. Postmaster: send address changes to Int'l. J. Radiation Oncology, Biology, Physics, Subscription Dept., Pergamon Press, Fairview Park, Elmsford, NY 10523.

INTERNATIONAL JOURNAL OF
RADIATION ONCOLOGY BIOLOGY·PHYSICS

VOLUME 19, NUMBER 1 JULY 1990

TABLE OF CONTENTS

Editor's Note
P. Rubin 1

● *ORIGINAL CONTRIBUTIONS*

The Incidence of Myelitis After Irradiation of the Cervical Spinal Cord
R. B. Marcus Jr. and R. R. Million 3

The Influence of Tumor Size and Pre-Treatment Staging on Outcome Following Radiation Therapy Alone for Stage I Non-Small Cell Lung Cancer
H. M. Sandler, W. J. Curran Jr. and A. T. Turrisi III 9

Curative Radiotherapy in Non-Small Cell Carcinoma of the Lung
B. M. Talton, W. C. Constable and C. R. Kersh 15

Hyperfractionated Radiotherapy Alternating With Multidrug Chemotherapy in the Treatment of Limited Small Cell Lung Cancer (SCLC)
F. Mornex, V. Trillet, F. Chauvin, J.-M. Ardiet, T. Schmitt, P. Romestaing, C. Carrie, M. Mahe, J.-F. Mornex, P. Fournel, P.-J. Souquet, E. Boniface, M. Vincent, D. Piperno, P. Rebattu, J.-P. Gerard and the Groupe Lyonnais d'Oncologie Thoracique 23

Superior Sulcus Tumors: Treatment Selection and Results for 85 Patients Without Metastasis (M_0) at Presentation
R. Komaki, C. F. Mountain, J. M. Holbert, A. S. Garden, R. Shallenberger, J. D. Cox, M. H. Maor, V. F. Guinee and B. Samuels 31

Desmoid Tumors: A 20-Year Radiotherapy Experience
N. E. Sherman, M. Romsdahl, H. Evans, G. Zagars and M. J. Oswald 37

Limb Salvage Therapy for Soft Tissue Sarcomas of the Foot
M. T. Selch, K. H. Kopald, G. A. Ferreiro, J. M. Mirra, R. G. Parker and F. R. Eilber 41

Role of Intracavitary Cuff Boost After Adjuvant External Irradiation in Early Endometrial Carcinoma
M. E. Randall, J. Wilder, K. Greven and M. Raben 49

Radiotherapy in Epithelial Tumors of the Parotid Gland: Case Presentation and Literature Review
L. A. Ravasz, C. H. J. Terhaard and G. J. Hordijk 55

Regeneration in Cervix Cancer After ^{252}Cf Neutron Brachytherapy
Y. Maruyama, J. Wierzbicki, J. Feola and M. Urano 61

The Interaction Between Recombinant Human Tumor Necrosis Factor and Radiation in 13 Human Tumor Cell Lines
D. E. Hallahan, M. A. Beckett, D. Kufe and R. R. Weichselbaum 69

Enhanced DNA Repair and Tolerance of DNA Damage Associated With Resistance to *cis*-Diammine-Dichloroplatinum (II) After *In Vitro* Exposure of a Human Teratoma Cell Line to Fractionated X-Irradiation
B. T. Hill, S. A. Shellard, L. K. Hosking, A. M. J. Fichtinger-Schepman and P. Bedford 75

Intra-Cerebral Ventricular Infusion of 5-Iodo-2-Deoxyuridine (IUDR) as a Radiosensitizer in the Treatment of a Rat Glioma
M. Deutsch, A. B. Rewers, E. S. Redgate, E. R. Fisher and S. S. Boggs 85

● *ASTRO 1989 RESIDENT ESSAY AWARD*

Polyamine Biosynthesis Inhibitors Combined With Systemic Hyperthermia in Cancer Therapy
P. M. Harari, D. J. M. Fuller, S. W. Carper, M. K. Croghan, F. L. Meyskens Jr., D. S. Shimm and E. W. Gerner 89

● *BRIEF COMMUNICATIONS*

Fluosol® and Oxygen Breathing as an Adjuvant to Radiation Therapy in the Treatment of Locally Advanced Non-Small Cell Carcinoma of the Lung: Results of a Phase I/II Study
R. Lustig, N. Lowe, L. Prosnitz, M. Spaulding, M. Cohen, J. Stitt and R. Brannon 97

Intraoperative Radiotherapy During Lung Cancer Surgery: Technical Description and Early Clinical Results
F. A. Calvo, D. Ortiz de Urbina, O. Abuchaibe, I. Azinovic, J. Aristu, M. Santos, L. Escude, J. Herreros and R. Llorens 103

The Influence of Extent and Local Management on the Outcome of Radiotherapy for Brain Metastases
P. J. Hoskin, J. Crow and H. T. Ford 111

Megavoltage External Beam Irradiation of Craniopharyngiomas: Analysis of Tumor Control and Morbidity
J. C. Flickinger, L. D. Lunsford, J. Singer, E. R. Cano and M. Deutsch 117

Prospective Computer-Assisted Voice Analysis for Patients With Early Stage Glottic Cancer: A Preliminary Report of the Functional Result of Laryngeal Irradiation
L. B. Harrison, B. Solomon, S. Miller, D. E. Fass, J. Armstrong and R. B. Sessions 123

● *TECHNICAL INNOVATIONS AND NOTES*

The Influence of Dose Constraint Point Placement on Optimized Radiation Therapy Treatment Planning
S. M. Morrill, I. I. Rosen, R. G. Lane and J. A. Belli 129

Estimation of Complications for Linear Accelerator Radiosurgery With the Integrated Logistic Formula
J. C. Flickinger, M. C. Schell and D. A. Larson 143

Reproducibility of Mantle Irradiation With Daily Imaging Films
B. W. Taylor Jr., N. P. Mendenhall and R. R. Million 149

Clinical Use of a Wing Field With Transmission Block for the Treatment of the Pelvis Including the Inguinal Node
A. M. Kalend, T. L. Park, A. Wu, S. Kalnicki, A. G. Meek, W. D. Bloomer and E. L. Solowsky 153

Improved Dose Homogeneity in Electron Arc Therapy Achieved by a Multiple-Energy Technique
D. D. Leavitt, J. R. Stewart and L. Earley 159

Dose Calculations About Shielded Gynecological Colpostats
J. F. Williamson 167

MRI Treatment Planning for CNS Neoplasm: Graphic Display of Target Volume Using Boxed Cursor
G. A. Fortier and M. R. Pellitteri 179

A Technique for Treating Local Breast Cancer Using a Single Set-Up Point and Asymmetric Collimation
U. F. Rosenow, E. S. Valentine and L. W. Davis 183

Technique for Breast Irradiation Using Custom Blocks Conforming to the Chest Wall Contour
W. F. Hartsell, A. K. Murthy, K. D. Kiel, M. Kao and F. R. Hendrickson 189

● *ONCOLOGY INTELLIGENCE*

Hypoxic Fractions of Human Tumors Xenografted Into Mice: A Review
S. Rockwell and J. E. Moulder 197

The Biological Effect of Inhomogeneous Dose Distributions in Fractionated Radiotherapy
R. J. Yaes 203

● *SPECIAL FEATURE*

Influence of Clinical Trials on Current Treatment Strategy for Hodgkin's Disease
G. Bonadonna and P. Valagussa 209

● *EDITORIALS*

Spinal Cord Radiation "Tolerance": Doctrine Versus Data
T. E. Schultheiss 219

Is Radiation Therapy a Viable Alternative to Surgery in Early Stage Lung Cancer?
B. G. Haffty 223

Radiation Dose and Response of Desmoid Tumors
H. D. Suit 225

● *CORRESPONDENCE*

Radiotherapy in the Treatment of Pituitary Tumors
P. N. Plowman and A. Grossman 229

Primary Radiotherapy for Pituitary Tumors: In Response to Drs. Plowman and Grossman
S. Rush and J. Newall 230

● *MEETINGS* 231

VOLUME 19, NUMBER 2 AUGUST 1990

TABLE OF CONTENTS

Editor's Note
P. Rubin 233

● *ORIGINAL CONTRIBUTIONS*

External Irradiation of Epithelial Skin Cancer
R. D. Lovett, C. A. Perez, S. J. Shapiro and D. M. Garcia 235

Ciliary Body Melanoma Treated With Helium Particle Irradiation
M. Decker, J. R. Castro, D. E. Linstadt, D. Char, P. L. Petti, J. M. Quivey and D. Ahn 243

Conjunctival Lymphoma: Results and Treatment With a Single Anterior Electron Field. A Lens Sparing Approach
S. F. Dunbar, R. M. Linggood, K. P. Doppke, A. Duby and C. C. Wang 249

Prognostic Factors in the Radiotherapy of Graves' Ophthalmopathy
I. A. Petersen, J. P. Kriss, I. R. McDougall and S. S. Donaldson 259

Posterior Fossa Medulloblastoma in Childhood: Treatment Results and a Proposal for a New Staging System
D. Jenkin, K. Goddard, D. Armstrong, L. Becker, M. Berry, H. Chan, M. Doherty, M. Greenberg, B. Hendrick, H. Hoffman, R. Humphreys, M. Sonley, S. Weitzman and A. Zipursky 265

Univariate and Multivariate Statistical Analysis of High-Grade Gliomas: The Relationship of Radiation Dose and Other Prognostic Factors
P. J. Miller, R. S. Hassanein, P. G. Shankar Giri, B. F. Kimler, P. O'Boynick and R. G. Evans 275

Prognostic Factors of Local Outcome for T1, T2 Carcinomas of Oral Tongue Treated by Iridium 192 Implantation
J. J. Mazeron, J. M. Crook, G. Marinello, W. Walop and B. Pierquin 281

Preoperative Radiation Therapy in Regionally Localized Stage III Non-Small Cell Lung Carcinoma: Long-Term Results and Patterns of Failure
S. Reddy, L. Penfield Faber, L. A. Baumann, M.-S. Lee, R. J. Jensik, F. C. Kittle, P. D. Bonomi, S. G. Taylor IV and F. R. Hendrickson 287

Fetal Hypothalamic Transplants Into Brain Irradiated Rats: Graft Morphometry and Host Behavioral Responses
S. H. Pearlman, P. Rubin, H. C. White, S. J. Wiegand and D. M. Gash 293

Radiotherapy by Multiple Fractions Per Day (MFD) in Head and Neck Cancer: Acute Reactions of Skin and Mucosa
E. Van der Schueren, W. Van den Bogaert, L. Vanuytsel and E. Van Limbergen 301

Radiobiological Characterization of Head and Neck and Sarcoma Cells Derived From Patients Prior to Radiotherapy
R. R. Weichselbaum, M. A. Beckett, S. Vijayakumar, M. A. Simon, A. M. Awan, J. Nachman, W. R. Panje, M. E. Goldman, A. G. Tybor, W. J. Moran, E. E. Vokes, S. Ahmed-Swan and E. Farhangi 313

Radiation-Induced Ocular Injury in the Dog: A Histological Study
S. V. Ching, S. McChesney Gillette, B. E. Powers, S. M. Roberts, E. L. Gillette and S. J. Withrow 321

Pharmacological Alteration of the Lung Vascular Response to Radiation
M. M. Graham, M. L. Evans, D. D. Dahlen, P. A. Mahler and J. S. Rasey 329

Tumor and Normal Tissue Tolerance for Fractionated Low-Dose-Rate Radiotherapy
J. E. Moulder, B. L. Fish and J. F. Wilson 341

Possible Relationship Between Chromosome Alterations and *In Vitro* Cellular Radiosensitivity of Human Malignant Melanoma
H. McBride, B. Stea, A. Hill and J. Trent 349

Radiation, Pool Size and Incorporation Studies in Mice With 5-Chloro-2'-Deoxycytidine
O. Santos, L. M. Perez, T. V. Briggle, D. A. Boothman and S. B. Greer 357

Metastases After Fractionated Radiation Therapy of Three Murine Tumor Models
M. Baumann, H. D. Suit and R. S. Sedlacek 367

Cytogenetic Effects of Radiotherapy: Frequency and Types of Chromosome Aberrations
L. Barrios, M. R. Caballín, R. Miró, C. Fuster, F. Guedea, A. Subias and J. Egozcue 371

Absorbed Power Deposition for Various Insertion Depths for 915 MHz Interstitial Dipole Antenna Arrays: Experiment Versus Theory
T. P. Ryan, J. A. Mechling and J. W. Strohbehn 377

Time-Temperature Analysis of Cell Killing of BHK Cells Heated at Temperatures in the Range of 43.5°C to 57.0°C
M. J. Borrelli, L. L. Thompson, C. A. Cain and W. C. Dewey 389

● *PHASE I/II CLINICAL TRIALS*

Preliminary Results of a Pilot Study of Pentoxifylline in the Treatment of Late Radiation Soft Tissue Necrosis
M. W. Dion, D. H. Hussey, J. F. Doornbos, A. P. Vigliotti, B.-C. Wen and B. Anderson 401

"Instant-Mix" Whole Brain Photon With Neutron Boost Radiotherapy for Malignant Gliomas
J. D. Kolker, H. J. Halpern, S. Krishnasamy, F. Brown, G. Dohrmann, L. Ferguson, J. Hekmatpanah, J. Mullan, R. Wollman, R. Blough and R. R. Weichselbaum 409

A Phase I/II Study of the Use of Fluosol® as an Adjuvant to Radiation Therapy in the Treatment of Primary High-Grade Brain Tumors
R. G. Evans, B. F. Kimler, R. A. Morantz, T. S. Vats, L. S. Gemer, V. Liston and N. Lowe 415

Intra-Arterial Bromodeoxyuridine Radiosensitization of Malignant Gliomas
T. J. Hegarty, A. F. Thornton, R. F. Diaz, W. F. Chandler, W. D. Ensminger, L. Junck, M. A. Page, S. S. Gebarski, T. W. Hood, P. L. Stetson, R. M. Tankanow, P. E. McKeever, A. S. Lichter and H. S. Greenberg 421

● *BRIEF COMMUNICATIONS*

Radiation Therapy for Intracranial Germinoma: The Case for Limited Volume Treatment
M. J. Dattoli and J. Newall 429

Chylous Ascites After Whole-Abdomen Irradiation for Gynecologic Malignancy
S. S. Lentz, M. F. Schray and T. O. Wilson 435

Reversal of Cranial Nerve Dysfunction With Radiation Therapy in Adults With Lymphoma and Leukemia
J. R. Gray and K. E. Wallner 439

Hemangiopericytoma—The Role of Radiotherapy
J. J. Staples, R. A. Robinson, B.-C. Wen and D. H. Hussey 445

Results of Radiotherapy in the Treatment of Acromegaly: Lack of Ophthalmologic Complications
R. J. Dowsett, B. Fowble, R. C. Sergott, P. J. Savino, T. M. Bosley, P. J. Snyder and T. A. Gennarelli 453

● *TECHNICAL INNOVATIONS AND NOTES*

Study of Dose Perturbation Parameters for Eye Shielding in Megavoltage Photon Beam Therapy
I. J. Das, K. R. Kase, T. J. Fitzgerald and D. A. Ligon 461

Minimization of Small Bowel Volume Within Treatment Fields Utilizing Customized "Belly Boards"
T. G. Shanahan, M. P. Mehta, K. L. Bertelrud, D. A. Buchler, L. E. Frank, M. A. Gehring, S. S. Kubsad, P. C. Utrie and T. J. Kinsella 469

The Usefulness of Ultrasonography in Intracavitary Radiotherapy Using Selectron Applicators
F. Wong and S. Bhimji 477

Use of Light-Dependent-Resistor Circuit to Remotely Reset Digital Constancy Meter
A. Perec and H. Kubo 483

● *ONCOLOGY INTELLIGENCE*

Irradiation Alone for Supraglottic Larynx Carcinoma: Can CT Findings Predict Treatment Results?
D. E. Freeman, A. A. Mancuso, J. T. Parsons, W. M. Mendenhall and R. R. Million 485

● *EDITORIALS*

External Irradiation of Epithelial Skin Cancer
L. W. Brady 491

Neutron Radiotherapy for High Grade Gliomas: The Search for the Elusive Therapeutic Window
G. E. Laramore 493

Tumor Volume as a Predictor of Radiocurability—A Drop in the Bucket?
L. J. Peters and C. D. Wendt 497

Treatment Approaches in Soft Tissue Sarcomas—Putting Our Best Foot Forward
T. J. Kinsella 499

● *IN MEMORIAM*

Raymond Hugh Thomlinson (1922–1989)
R. F. Kallman 503

● *CORRESPONDENCE*

Response to Laramore
J. D. Kolker, H. Halpern, S. Krishnasamy and R. R. Weichselbaum 505

Response to Dr. Kinsella's Editorial
M. T. Selch 505

A Lip Sparing Technique for External Beam Irradiation of Oral Lesions
T. P. Hayes 506

Bilateral Squamous Cell Carcinoma of the Middle Ear
B. Carlsöö, L. Franzén, R. Henriksson, P.-O. Löfroth and S. H. Schmidt 506

● *MEETINGS* 508

VOLUME 19, NUMBER 3 SEPTEMBER 1990

TABLE OF CONTENTS

Editor's Note
P. Rubin 511

● *ORIGINAL CONTRIBUTIONS*

Prophylactic Irradiation of the Para-Aortic Lymph Node Chain in Stage IIB and Bulky Stage IB Carcinoma of the Cervix, Initial Treatment Results of RTOG 7920
M. Rotman, K. Choi, C. Guze, V. Marcial, N. Hornback and M. John 513

Preoperative or Postoperative Brachytherapy for Patients With Endometrial Carcinoma Stage I and II
G. Calais, L. Vitu, P. Descamps, G. Body, A. Reynaud-Bougnoux, J. Lansac, P. Bougnoux, and O. Le Floch 523

Patterns of Failure in Patients With Stage I, Grade 3 Carcinoma of the Endometrium
K. M. Greven, M. Randall, J. Fanning, M. Bahktar, P. Duray, A. Peters and W. J. Curran Jr. 529

Improved Survival in Advanced Hodgkin's Disease With the Use of Combined Modality Therapy
D. M. Brizel, E. P. Winer, L. R. Prosnitz, J. Scott, J. Crawford, J. O. Moore and J. P. Gockerman 535

Mediastinal Irradiation in Combined Modality Therapy for Hodgkin's Disease
S. W. Dowling, R. E. Peschel, C. S. Portlock, C. Kramer, L. R. Farber and A. H. Knowlton 543

Curative Radiotherapy for Laparotomy-Staged IA, IIA, IIIA Hodgkin's Disease: An Evaluation of the Gains Achieved With Radical Radiotherapy
C. K. K. Lee, D. M. Aeppli, C. D. Bloomfield and S. H. Levitt 547

Carcinoma of the Prostate Stage B and C: Lack of Influence of Duration of Radiotherapy on Tumor Control and Treatment Morbidity
P. P. Lai, C. A. Perez, S. J. Shapiro and M. A. Lockett 561

Radiation Therapy for AIDS-Related Kaposi's Sarcoma
A. M. Berson, J. M. Quivey, J. W. Harris and W. M. Wara 569

Postoperative Irradiation for the Prevention of Heterotopic Bone: Analysis of Different Dose Schedules and Shielding Considerations
L. H. Blount, B. J. Thomas, L. Tran, M. T. Selch, J. E. Sylvester and R. G. Parker 577

The Essential Role of Radiation Therapy in Securing Locoregional Control of Merkel Cell Carcinoma
W. H. Morrison, L. J. Peters, E. G. Silva, C. D. Wendt, K. K. Ang and H. Goepfert 583

Adenocarcinoma of the Esophagus and Esophago-Gastric Junction: The Effects of Single and Combined Modalities on the Survival and Patterns of Failure Following Treatment
R. Whittington, L. R. Coia, D. G. Haller, J. H. Rubenstein and E. F. Rosato 593

High Dose, External Beam and Intraoperative Radiotherapy in the Treatment of Resectable and Unresectable Pancreatic Cancer
Y. Shibamoto, T. Manabe, N. Baba, K. Sasai, M. Takahashi, T. Tobe and M. Abe 605

Long-Term Results of Helium Ion Irradiation of Uveal Melanoma
D. Linstadt, J. Castro, D. Char, M. Decker, D. Ahn, P. Petti, V. Nowakowski, J. Quivey and T. L. Phillips 613

The Cytokine CSF-1 (M-CSF), Expressed by Endometrial Carcinomas *In Vivo* and *In Vitro*, May Also Be a Circulating Tumor Marker of Neoplastic Disease Activity in Endometrial Carcinoma Patients
B. M. Kacinski, S. K. Chambers, E. R. Stanley, D. Carter, P. Tseng, K. A. Scata, D. H-Y. Chang, M. H. Pirro, J. T. Nguyen, A. Ariza, L. R. Rohrschneider and V. M. Rothwell 619

^{90}Y • B72.3 Against Pancreatic Cancer: Dosimetric and Biological Analysis
M. P. Mehta, S. S. Kubsad, J. F. Fowler, A. K. Verma, J.-T. Hsieh and T. J. Kinsella 627

Targeting and Therapy of Human Glioma Xenografts *In Vivo* Using Radiolabeled Antibodies
J. A. Williams, J. A. Edwards, B. W. Wessels, L. E. Dillehay, P. M. Wanek, J. K. Poggenburg, M.D. Wharam, S. E. Order and J. L. Klein 633

Drug Resistance Following Irradiation of RIF-1 Tumors: Influence of the Interval Between Irradiation and Drug Treatment
L. E. Hopwood, B. M. Davies and J. E. Moulder 643

Tumor Induction Following Intraoperative Radiotherapy: Late Results of the National Cancer Institute Canine Trials
M. Barnes, P. Duray, A. DeLuca, W. Anderson, W. Sindelar and T. Kinsella 651

Radiation Fractionation Sensitivity of Epiphyseal Cartilage in a Weanling Rat Model
P. J. Eifel, C. M. Sampson and S. L. Tucker 661

Effect of Fluosol-DA 20% and Oxygen on Response of C57BL/6 Mice to Whole-Body Irradiation
S. M. Waldow, R. A. Lustig, E. L. Brass-Marlow, M. P. Nunno, R. J. Holst and P. E. Wallner 665

Simultaneous Localized 915 MHz External and Interstitial Microwave Hyperthermia to Heat Tumors Greater Than 3 cm in Depth
B. B. Mittal, V. Sathiaseelan and M. S. Kies 669

The Modification of Specific Absorption Rates in Interstitial Microwave Hyperthermia Via Tissue-Equivalent Material Bolus
S. Sundararaman, D. L. Denman, R. A. Legorreta, A. E. Foster, K. P. Redmond, H. R. Elson, A. M. Born, R. C. Samaratunga, G. C. Lewis Jr., J. G. Kereiakes and B. S. Aron 677

● *PHASE I/II CLINICAL TRIALS*

Radiotherapy With and Without Cisplatin in Bladder Cancer
R. Sauer, J. Dunst, A. Altendorf-Hofmann, H. Fischer, C. Bornhof and K. M. Schrott 687

Combined 5-Fluorouracil and Irradiation for Transitional Cell Carcinoma of the Urinary Bladder
K. J. Russell, M. A. Boileau, C. Higano, C. Collins, A. H. Russell, W. Koh, S. B. Cole, W. H. Chapman and T. W. Griffin 693

● *BRIEF COMMUNICATIONS*

Invasive Carcinoma of the Uterine Cervix in Women Age 25 or Less
H. R. Maddux, M. A. Varia, C. O. Spann, W. C. Fowler and J. G. Rosenman 701

Prospective Study of Long-Term Pulmonary Manifestations of Mantle Irradiation
S. J. Shapiro, S. D. Shapiro, W. B. Mill and E. J. Campbell 707

Is Pelvic Irradiation Necessary in Stage III_1A Hodgkin's Disease?
W. F. Hartsell, R. Farah, A. Murthy, H. Golomb and R. Weichselbaum 715

Radiation Effects on Left Ventricular Function and Myocardial Perfusion in Long Term Survivors of Hodgkin's Disease
D. E. Savage, L. S. Constine, R. G. Schwartz and P. Rubin 721

Pre and Posttreatment Evaluation of Sexual Function in Patients With Adenocarcinoma of the Prostate
E. S. Zinreich, L. R. Derogatis, J. Herpst, G. Auvil, S. Piantadosi and S. E. Order 729

A Prospective Study of Prostate Specific Antigen Levels in Patients Receiving Radiotherapy for Localized Carcinoma of the Prostate
A. G. Meek, T. L. Park, E. Oberman and L. Wielopolski 733

Prospective Evaluation of Pulmonary Function in Cancer Patients Treated With Total Body Irradiation, High-Dose Melphalan, and Autologous Hematopoietic Stem Cell Transplantation
L. Gandola, S. Siena, M. Bregni, E. Sverzellati, P. Piotti, C. Stucchi, A. M. Gianni and F. Lombardi 743

● *TECHNICAL INNOVATIONS AND NOTES*

Transperineal Templates for Brachytherapy Treatment of Pelvic Malignancies—A Comparison of Standard and Customized Templates
G. C. Bentel, J. R. Oleson, D. Clarke-Pearson, J. T. Soper and G. S. Montana 751

Beam's Eye View Based Prostate Treatment Planning: Is It Useful?
N. N. Low, S. Vijayakumar, I. Rosenberg, S. Rubin, R. Virudachalam, D. R. Spelbring and G. T. Y. Chen 759

Perineal Template Techniques for Interstitial Implantation of Gynecological Cancers Using the Paris System of Dosimetry
S. Leung 769

Radiosurgery of Cerebral Arteriovenous Malformations With the Dynamic Stereotactic Irradiation
L. Souhami, A. Olivier, E. B. Podgorsak, M. Pla and G. B. Pike 775

Treatment Volume Shaping With Selective Beam Blocking Using the Leksell Gamma Unit
J. C. Flickinger, A. Maitz, A. Kalend, L. D. Lunsford and A. Wu 783

● *SPECIAL FEATURES*

High-dose-rate versus Low-dose-rate Intracavitary Brachytherapy for Carcinoma of the Cervix
K. K. Fu and T. L. Phillips 791

3-D Beams Need 3-D Names
S. L. Sailer, J. D. Bourland, J. G. Rosenman, G. W. Sherouse, E. L. Chaney and J. E. Tepper 797

● *EDITORIALS*

Elective Irradiation of the Para-Aortic Nodes in Squamous Cell Carcinoma of the Uterine Cervix
G. H. Fletcher 799

Brachytherapy: A Clinical Dilemma
C. A. F. Joslin 801

Hodgkin's Disease: The Right Dose
L. R. Prosnitz 803

The Caucus Race: Regionalism in the Treatment of Hodgkin's Disease
T. Goffman and E. Glatstein 805

Optimal Treatment of Epidemic Kaposi's Sarcoma
J. S. Cooper 807

Postoperative Irradiation for Prevention of Heterotopic Bone After Total Hip Arthroplasty
A. A. Konski and V. D. Pellegrini 809

The Current Status of Combined Modality Treatment Containing Chemotherapy in Patients With Esophageal Cancer
M. Al-Sarraf 813

Chemo-Radiation Therapy of Bladder Cancer
C. S. Lange, D. Phil and M. Rotman 817

Oblique Sections Need 3-D Names Also
M. Goitein 821

● *CORRESPONDENCE*

Do Superior Sulcus Tumors Have a Better Prognosis Than Other Lung Cancer Sites?
P. Van Houtte and P. Rocmans 823

A New Staging System for Endometrial Carcinoma
W. A. Bethune 825

Response to Goffman and Glatstein
C. K. K. Lee 825

Response to Konski and Pellegrini
L. H. Blount and B. J. Thomas 826

● *MEETINGS* 827

● *ERRATUM* 829

VOLUME 19, NUMBER 4 OCTOBER 1990

TABLE OF CONTENTS

Editor's Note
P. Rubin 831

● *ORIGINAL CONTRIBUTIONS*

Breast Recurrence Following Conservative Surgery and Radiation: Patterns of Failure, Prognosis, and Pathologic Findings from Mastectomy Specimens With Implications for Treatment
B. Fowble, L. J. Solin, D. J. Schultz, J. Rubenstein and R. L. Goodman 833

Definitive Irradiation for Intraductal Carcinoma of the Breast
L. J. Solin, B. L. Fowble, D. J. Schultz, I-T. Yeh, M. J. Kowalyshyn and R. L. Goodman 843

Isolated Local-Regional Recurrence of Breast Cancer Following Mastectomy: Radiotherapeutic Management
K. J. Halverson, C. A. Perez, R. R. Kuske, D. M. Garcia, J. R. Simpson and B. Fineberg 851

Regional Nodal Irradiation in the Conservative Treatment of Breast Cancer
B. G. Haffty, D. Fischer and J. J. Fischer 859

Wilms' Tumor: Reduced-Dose Radiotherapy in Advanced-Stage Wilms' Tumor With Favorable Histology
R. L. Tobin, J. Fontanesi, L. E. Kun, D. L. Fairclough, H. O. Hustu, W. J. Pao, E. C. Douglass, J. Wilimas, A. P. Mahesh Kumar and J. J. Jenkins 867

Gonadal Status and Reproductive Function Following Treatment for Hodgkin's Disease in Childhood: The Stanford Experience
T. T. Sy Ortin, C. A. Shostak and S. S. Donaldson 873

Nasopharyngeal Carcinoma in the Young: A Combined M.D. Anderson and Stanford Experience
L. Ingersoll, S. Y. Woo, S. Donaldson, J. Giesler, M. H. Maor, D. Goffinet, A. Cangir, H. Goepfert, M. J. Oswald and L. J. Peters 881

Comparison of Two Total Body Irradiation Regimens in Allogeneic Bone Marrow Transplantation for Acute Non-Lymphoblastic Leukemia in First Remission
T. H. Kim, P. B. McGlave, N. Ramsay, W. Woods, B. Bostrom, G. Vercellotti, D. Hurd, W. Krivit, M. Nesbit, R. Haake, F. Khan and J. H. Kersey 889

Preoperative Irradiation for Soft Tissue Sarcomas of the Trunk and Extremities in Adults
T. A. Brant, J. T. Parsons, R. B. Marcus Jr., S. S. Spanier, T. C. Heare, R. A. van der Griend, W. F. Enneking and R. R. Million 899

Postoperative Radiotherapy in the Treatment of Extremity Soft Tissue Sarcomas
W. J. Pao and M. V. Pilepich 907

Limb Salvage in Soft Tissue Sarcomas Involving Neurovascular Structures Using Combined Surgical Resection and Brachytherapy
M. J. Zelefsky, D. Nori, M. H. Shiu and M. F. Brennan 913

Cervical Metastases From Unknown Primaries: Radiotherapeutic Management and Appearance of Subsequent Primaries
V. A. Marcial-Vega, H. Cardenes, C. A. Perez, V. R. Devineni, J. R. Simpson, J. M. Fredrickson, D. G. Sessions, G. G. Spector and S. E. Thawley 919

Nasopharyngeal Carcinoma: Orderly Neck Node Spread
J. S. T. Sham, D. Choy and W. I. Wei 929

Radiation Myelopathy in Primates Treated With Conventional Fractionation
T. E. Schultheiss, L. C. Stephens, G.-L. Jiang, K. K. Ang and L. J. Peters 935

Radiation Response in 10 High-Grade Human Soft Tissue Sarcoma Xenografts to Photons and Fast Neutrons
V. Budach, M. Stuschke, W. Budach, M. Molls and H. Sack 941

Influence of Scheduling, Dose, and Volume of Administration of a Perfluorochemical Emulsion on Tumor Response to Radiation Therapy
B. A. Teicher, T. S. Herman and S. M. Jones 945

Tumor Tissue Oxygenation as Evaluated by Computerized-pO_2-Histography
F. Kallinowski, R. Zander, M. Hoeckel and P. Vaupel 953

***In Vitro* Effect of Doxorubicin on Non-Proliferating and Proliferating Epithelial Cells**
E. Baral and G. Auer 963

● *PHASE I/II CLINICAL TRIALS*

Radiotherapy Combined With Low-Dose Cis-Diammine Dichloroplatinum (II) (CDDP) in Inoperable Nonmetastatic Non-Small Cell Lung Cancer (NSCLC): A Randomized Three Arm Phase II Study of the EORTC Lung Cancer and Radiotherapy Cooperative Groups
C. Schaake-Koning, B. Maat, P. van Houtte, W. van den Bogaert, O. Dalesio, A. Kirkpatrick and H. Bartelink 967

Randomized Study of 5 Fluorouracil and CIS Platin as Neoadjuvant Therapy in Head and Neck Cancer: A Preliminary Report
M. Martin, A. Hazan, L. Vergnes, C. Peytral, J. J. Mazeron, J. P. Sénéchaut, G. Lelièvre and R. Peynègre 973

● *BRIEF COMMUNICATIONS*

Radiation Injury in the Human Kidney: A Prospective Analysis Using Specific Scintigraphic and Biochemical Endpoints
L. Dewit, J. K. Anninga, C. A. Hoefnagel and W. J. Nooijen 977

Masses of Myeloadipose Tissue: Radiological and Clinical Considerations
C. Papavasiliou, A. Gouliamos, E. Deligiorgi, L. Vlahos and T. Cambouris 985

Local-Regional Non-Rhabdomyosarcomatous Soft Tissue Sarcomas of the Head and Neck
J. Fontanesi, C. Pratt, L. Kun, O. Hustu, W. J. Pao, E. Douglass, I. Fleming and B. Rao 995

Pretreatment Evaluation of Sexual Function in Patients With Adenocarcinoma of the Prostate
E. S. Zinreich, L. R. Derogatis, J. Herpst, G. Auvil, S. Piantadosi and S. E. Order 1001

Clinical Assessment of Therapeutic Effects on Cancer Using ^{18}F-2-fluoro-2-deoxy-D-glucose and Positron Emission Tomography: Preliminary Study of Lung Cancer
Y. Abe, T. Matsuzawa, T. Fujiwara, M. Itoh, H. Fukuda, K. Yamaguchi, K. Kubota, J. Hatazawa, M. Tada, T. Ido and S. Watanuki 1005

Histological and Immunohistochemical Prediction for Local Control of Cervical Squamous Cell Carcinoma Treated With Radiotherapy Alone
T. Nakano, K. Oka and T. Arai 1011

● *TECHNICAL INNOVATIONS AND NOTES*

Stereotactic Single High Dose Radiation Therapy of Benign Intracranial Meningiomas
R. Engenhart, B. N. Kimmig, K.-H. Höver, B. Wowra, V. Sturm, G. van Kaick and M. Wannenmacher 1021

Monte Carlo and Convolution Dosimetry for Stereotactic Radiosurgery
S. S. Kubsad, T. R. Mackie, M. A. Gehring, D. J. Misisco, B. R. Paliwal, M. P. Mehta and T. J. Kinsella 1027

A Nondivergent Three Field Matching Technique for Breast Irradiation
J. C. H. Chu, L. J. Solin, C. C. Hwang, B. Fowble, G. E. Hanks and R. L. Goodman 1037

An Application of Dose Volume Histograms to the Treatment of Intrahepatic Malignancies With Radiation Therapy
T. S. Lawrence, R. J. Tesser and R. K. Ten Haken 1041

Ultrasonically Guided Percutaneous Implantation of Iodine-125 Seeds in Pancreatic Carcinoma
F. Joyce, F. Burcharth, H. H. Holm and I. Strøyer 1049

Evaluation of a Commercial Diode Monitor for Mailed Quality Control of Therapy Units
L. A. DeWerd, J. Price, J. R. Cameron and S. J. Goetsch 1053

Virtual Simulation in the Clinical Setting: Some Practical Considerations
G. W. Sherouse, J. D. Bourland, K. Reynolds, H. L. McMurry, T. P. Mitchell and E. L. Chaney 1059

Effects of Fat Thickness on Heating Patterns of the Microwave Applicator Ma-151 at 631 and 915 MHz
C. K. Chou, J. A. McDougall, K. W. Chan and K. H. Luk 1067

● *ONCOLOGY INTELLIGENCE*

Cell Repopulation and Overall Treatment Time
K.-R. Trott 1071

Optimization of Uncomplicated Control for Head and Neck Tumors
A. Ägren, A. Brahme and I. Turesson 1077

● *EDITORIALS*

Local Recurrence After Breast-Conserving Surgery and Radiotherapy: What Have We Learned?
J. M. Kurtz and J.-M. Spitalier 1087

Is Radiotherapy as Curative as Mastectomy for Patients With Ductal Carcinoma *In Situ*?
J. R. Harris and S. J. Schnitt 1091

Radiation Therapy of Isolated Local-Regional Recurrence of Breast Cancer: Decisions Regarding Dose, Field Size, and Elective Irradiation of Uninvolved Sites
J. Bedwinek 1093

The Optimization of Radiation Therapy and Chemotherapy: The Price of Success
G. J. D'Angio and P. R. M. Thomas 1097

Creating Life on the Plateau: Reproductive Potential in Survivors of Childhood Hodgkin's Disease
C. L. Schwartz 1099

Controversial Issues in the Management of Cervical Metastases
G. H. Fletcher 1101

● *CORRESPONDENCE*

Response to "Is Radiotherapy as Curative as Mastectomy for Patients With Ductal Carcinoma *In Situ*?"
L. Solin, B. Fowble and R. Goodman 1103

Response to Schmidt and Merkle
R. J. Yaes, J. Feola, M. Urano, J. Wierzbicki and Y. Maruyama 1104

On the Equivalence of the "LQ + Time" Model and the NSD Formula
W. Schmidt and K. Merkle 1106

Primary Radiotherapy and Chemotherapy for Locally Advanced Breast Cancer
M. C. Rounsaville 1106

Multimodality Treatment for Inflammatory Breast Cancer
W. W. Thoms Jr., M. D. McNeese, G. H. Fletcher and S. E. Singletary 1107

Principles of Oncologic Intervention
W. A. Bethune 1108

● *MEETINGS* 1109

VOLUME 19, NUMBER 5 NOVEMBER 1990

TABLE OF CONTENTS

Editor's Note
P. Rubin 1111

● *DEDICATION*

Dedication to Maurice Tubiana
D. Chassagne and F. Eschwège 1113

● *ORIGINAL CONTRIBUTIONS*

The Natural History of Breast Cancer: Implications for a Screening Strategy
M. Tubiana and S. Koscielny 1117

Evaluation of Radiotherapy in High-Risk Breast Cancer Patients: Report From the Danish Breast Cancer Co-operative Group (DBCG 82) Trial
M. Overgaard, J. J. Christensen, H. Johansen, A. Nybo-Rasmussen, C. Rose, P. van der Kooy, J. Panduro, F. Laursen, M. Kjær, N. E. Sørensen, C. C. Gadeberg, M. Hjelm-Hansen, J. Overgaard, K. W. Andersen and K. Zedeler 1121

Prognostic Significance of Breast Relapse After Conservative Treatment in Node-Negative Early Breast Cancer
B. Chauvet, A. Reynaud-Bougnoux, G. Calais, N. Panel, J. Lansac, P. Bougnoux and O. Le Floch 1125

The Use of a Specific Hypofractionated Radiation Therapy Regimen Versus Classical Fractionation in the Treatment of Breast Cancer: A Randomized Study of 230 Patients
F. Baillet, M. Housset, C. Maylin, G. Boisserie, R. Bettahar, S. Delanian and F. Habib 1131

Alternating Radiotherapy and Chemotherapy in 173 Consecutive Patients With Limited Small Cell Lung Carcinoma
R. Arriagada, T. le Chevalier, P. Ruffie, P. Baldeyrou, H. De Cremoux, M. Martin, P. Chomy, M. L. Cerrina, B. Pellae-Cosset, M. Tarayre, H. Sancho-Garnier, the GROP and the French Cancer Center's Lung Group 1135

Causes of Failure of Curative Radiation Therapy in 205 Early Glottic Cancers
E. Cellai, A. Chiavacci and P. Olmi 1139

Prognostic Factors of Nasopharyngeal Carcinoma: A Multivariate Analysis
S. G. J. Tang, F. J. Lin, M. S. Chen, C. C. Liaw, W. M. Leung and J. H. Hong 1143

Fractionated Total Body Irradiation and Bone Marrow Transplantation in Acute Lymphoblastic Leukemia
C. Altschuler, M. Resbeut, D. Blaise, D. Maraninchi, A. M. Stoppa, J. L. Lagrange, J. P. Guillet and Y. Carcassonne 1151

Causes of Death After Therapy for Early Stage Hodgkin's Disease Entered on EORTC Protocols
M. Henry-Amar, M. Hayat, J. H. Meerwaldt, M. Burgers, P. Carde, R. Somers, E. M. Noordijk, M. Monconduit, J. Thomas, J. M. Cosset, E. Van der Schueren, R. Regnier, D. Bron, J. Lutsman-Maréchal, A. Tanguy, B. de Pauw and M. Tubiana for the EORTC Lymphoma Cooperative Group 1155

Radiosurgical Treatment Compared to Surgery Alone for Rectal Cancer
N. Cellini, V. Valentini, M. de Santis, A. G. Morganti, L. Trodella, C. Coco, A. Picciocchi and R. R. Dobelbower Jr. 1159

Combined Therapy of Localized Ewing's Sarcoma of Bone: Analysis of Results in 100 Patients
E. Barbieri, E. Emiliani, G. Zini, A. Mancini, A. Toni, G. Frezza, S. Neri, C. Putti and L. Babini 1165

Computed Tomography in Nasopharyngeal Carcinoma: Part I: T-Stage Conversion With CT-Staging
P. Olmi, E. Cellai, A. Chiavacci, C. Fallai, G. Giannardi, R. Fargnoli and N. Villari 1171

Computed Tomography in Nasopharyngeal Carcinoma: Part II: Impact on Survival
E. Cellai, P. Olmi, A. Chiavacci, G. Giannardi, R. Fargnoli, N. Villari and C. Fallai 1177

Cisplatin and Radiation: Interaction Probabilities and Therapeutic Possibilities
A. C. Begg 1183

Radiosensitivity of Human Melanoma Spheroids Influenced by Growth Rate
J. H. M. Schwachöfer, R. P. M. A. Crooijmans, J. Hoogenhout, C. R. Jerusalem, H. B. Kal and A. G. M. Theeuwes 1191

Cellular Radiosensitivity in V79 Cells is Linked to Alterations in Chromatin Structure
D. J. Gordon, A. E. Milner, R. P. Beaney, D. J. Grdina and A. T. M. Vaughan 1199

Primary Adjuvant Whole Abdominal Irradiation in Ovarian Carcinoma
H. Lindner, H. Willich and A. Atzinger 1203

● *PHASE I/II CLINICAL TRIALS*

Alternating Radiotherapy and Chemotherapy in Non-Metastatic Inflammatory Breast Cancer
R. Arriagada, H. Mouriesse, M. Spielmann, A. Mezlini, P. Oudinot, T. le Chevalier, C. Cuvier, F. Fontaine, J. P. Travagli, F. May-Levin and D. Sarrazin 1207

Continuous, Hyperfractionated, Accelerated Radiotherapy (CHART) in Non-Small Cell Carcinoma of the Bronchus
M. I. Saunders and S. Dische 1211

● *BRIEF COMMUNICATIONS*

Effectiveness of Combined Radio-Chemotherapy in the Management of Epidermoid Carcinoma of the Anal Canal
J. Papillon 1217

Role of Radiotherapy in Anal Preservation for Cancers of the Lower Third of the Rectum
J. Papillon and J. P. Gerard 1219

Combined Chemotherapy—Radiotherapy of Anal Cancer
R. Zucali, R. Doci and L. Bombelli 1221

Alternate Day Treatment and Late Effects: The Concept of an Effective Dose Per Fraction
A. Courdi, M. Héry and J.-M. Gabillat 1225

Late Tissue Reactions After Single-Fraction Sequential Half-Body Irradiation (HBI) in Patients With Non-Hodgkin's Lymphomas
H. K. Awwad, S. El Badawy, K. El Ghamrawy, M. El Mongy and S. Rizk 1229

● *TECHNICAL INNOVATIONS AND NOTES*

Uncertainties in Dosimetric Data and Beam Calibration
P. Andreo 1233

● *SPECIAL FEATURES: DEVELOPING COUNTRIES*

Supporting Cancer Care in the Developing Countries: Role of IAEA/WHO
M. Nofal, F. Durosinmi-Etti, G. P. Hanson and J. Stjernswärd 1249

An Overview of the Situation in Radiotherapy With Emphasis on the Developing Countries
G. P. Hanson, J. Stjernswärd, M. Nofal and F. Durosinmi-Etti 1257

An Overview of Cancer Management by Radiotherapy in Anglophone West Africa
F. A. Durosinmi-Etti 1263

Situation of Radiotherapy in Latin America
L. C. Calmon Teixeira 1267

The Radiotherapy Situation in Thailand and South East Asia
K. Tungsubutra 1271

National Training of Radiotherapists in Sri Lanka and Zimbabwe: Priorities and Strategies for Cancer Control in Developing Countries
J. Stjernswärd 1275

● *ONCOLOGY INTELLIGENCE*

The Value of Adjunctive Radiotherapy When Chemotherapy is the Major Curative Method
R. Arriagada, J. M. Cosset, T. le Chevalier and M. Tubiana 1279

Total Body Irradiation Regimens for Marrow Grafting
E. D. Thomas, *1990 Nobel Laureate* 1285

The Role of Marrow Grafts in Irradiation Accidents
E. D. Thomas, *1990 Nobel Laureate* 1289

Use of Hematopoietic Growth Factors in Radiation Accidents
R. P. Gale and A. Butturini 1291

Second Primary Tumors Following Radiotherapy for Childhood Cancer
M. M. Hawkins 1297

Cancer Occurring After Radiotherapy and Chemotherapy
L.-E. Holm 1303

Anal Cancer
B. J. Cummings 1309

The Rationale for Continuous, Hyperfractionated, Accelerated Radiotherapy (CHART)
S. Dische and M. I. Saunders 1317

● *EDITORIALS*

Alternate Strategies for Limited Stage Small Cell Lung Cancer
R. W. Byhardt and J. F. Wilson 1321

Influence of Conditioning on the Outcome of Allogeneic Bone Marrow Transplantation
E. Gluckman 1325

Fractionation: A Panoramic View
J. A. del Regato 1329

● *CORRESPONDENCE*

Local Control and Lethal Toxicity in Limited Small Cell Lung Cancer
R. Arriagada and T. le Chevalier 1333

● *MEETINGS* 1335

● *ONCOLIT* A1

VOLUME 19, NUMBER 6 DECEMBER 1990

TABLE OF CONTENTS

Editor's Note
P. Rubin 1337

● *ORIGINAL CONTRIBUTIONS*

Concomitant Boost Radiotherapy Schedules in the Treatment of Carcinoma of the Oropharynx and Nasopharynx
K. K. Ang, L. J. Peters, R. S. Weber, M. H. Maor, W. H. Morrison, C. D. Wendt and B. W. Brown 1339

Single Fraction Per Day Versus Two Fractions Per Day Versus Radiochemotherapy in the Treatment of Head and Neck Cancer
F. Sanchíz, A. Millá, J. Torner, F. Bonet, N. Artola, L. Carreño, L. M. Moya, D. Riera, S. Ripol and L. Cirera 1347

Outcome Analysis of Localized Gastrointestinal Lymphoma Treated With Surgery and Postoperative Irradiation
M. K. Gospodarowicz, S. B. Sutcliffe, R. M. Clark, A. J. Dembo, B. J. Patterson, P. J. Fitzpatrick, T. Chua and R. S. Bush 1351

Patterns of Failure Following Curative Resection of Gastric Carcinoma
J. Landry, J. E. Tepper, W. C. Wood, E. O. Moulton, F. Koerner and J. Sullinger 1357

Radiation Therapy of Squamous Cell Carcinoma of the Nasal Vestibule
P. C. Levendag and J. Pomp 1363

Iridium 192 Implantation of T1 and T2 Carcinomas of the Mobile Tongue
J. J. Mazeron, J. M. Crook, V. Benck, G. Marinello, M. Martin, M. Raynal, E. Haddad, R. Peynègre, J. P. Le Bourgeois, W. Walop and B. Pierquin 1369

The Effect of Overall Treatment Time on Local Control in Patients With Adenocarcinoma of the Prostate Treated With Radiation Therapy
R. J. Amdur, J. T. Parsons, L. T. Fitzgerald and R. R. Million 1377

The Role of Serum Prostatic Acid Phosphatase in the Management of Adenocarcinoma of the Prostate With Radiotherapy
J. C. Carlton, G. K. Zagars and M. J. Oswald 1383

Hepatic Function and Drug Pharmacokinetics After Total Body Irradiation Plus Bone Marrow Transplant
J. E. Moulder, B. L. Fish, J. S. Holcenberg and G.-X. Sun 1389

Radioresponse of Human Astrocytic Tumors Across Grade as a Function of Acute and Chronic Irradiation
C. J. Schultz and C. R. Geard 1397

Captopril Reduces Collagen and Mast Cell Accumulation in Irradiated Rat Lung
W. F. Ward, A. Molteni, C.-H. Ts'ao and J. M. Hinz 1405

Fluorodeoxyuridine-Induced Radiosensitization and Inhibition of DNA Double Strand Break Repair in Human Colon Cancer Cells
C. E. Bruso, D. S. Shewach and T. S. Lawrence 1411

Metoclopramide Enhances the Effect of Ionizing Radiation on Xenografted Squamous Cell Carcinoma of the Head and Neck
S. Lybak, E. Kjellén, J. Wennerberg and R. Pero 1419

Delayed Appearance of Lethal and Specific Gene Mutations in Irradiated Mammalian Cells
J. B. Little, L. Gorgojo and H. Vetrovs 1425

Preoperative Versus Postoperative Irradiation in the Prophylaxis of Heterotopic Bone Formation in Rats
D. A. Kantorowitz, G. J. Miller, J. A. Ferrara, G. S. Ibbott, R. Fisher and C. R. Ahrens 1431

The Interaction of Cisplatin Plus Etoposide With Radiation ± Hyperthermia
M. R. Pfeffer, B. A. Teicher, S. A. Holden, A. Al-Achi and T. S. Herman 1439

● *PHASE I/II CLINICAL TRIALS*

The Predictive Value of Cell Kinetic Measurements in a European Trial of Accelerated Fractionation in Advanced Head and Neck Tumors: An Interim Report
A. C. Begg, I. Hofland, L. Moonen, H. Bartelink, S. Schraub, P. Bontemps, R. Le Fur, W. Van Den Bogaert, R. Caspers, M. Van Glabbeke and J. C. Horiot 1449

Clinical Patterns of Failure Following Stereotactic Interstitial Irradiation for Malignant Gliomas
J. S. Loeffler, E. Alexander III, F. H. Hochberg, P. Y. Wen, J. H. Morris, W. C. Schoene, R. L. Siddon, R. H. Morse and P. M. Black 1455

Interstitial Thermoradiotherapy of Brain Tumors: Preliminary Results of a Phase I Clinical Trial
B. Stea, T. C. Cetas, J. R. Cassady, A. N. Guthkelch, R. Iacono, B. Lulu, W. Lutz, E. Obbens, K. Rossman, J. Seeger, A. Shetter and D. S. Shimm 1463

Thoracic Radiotherapy Variables: Influence on Local Control in Small Cell Lung Cancer Limited Disease
A. Turrisi III and D. J. Glover 1473

Two or Six Hyperthermia Treatments as an Adjunct to Radiation Therapy Yield Similar Tumor Responses: Results of a Randomized Trial
D. S. Kapp, I. A. Petersen, R. S. Cox, G. M. Hahn, P. Fessenden, S. D. Prionas, E. R. Lee, J. L. Meyer, T. V. Samulski and M. A. Bagshaw 1481

● *BRIEF COMMUNICATIONS*

Intracranial Ependymomas in Children
J. W. Goldwein, J. M. Leahy, R. J. Packer, L. N. Sutton, W. J. Curran, L. B. Rorke, L. Schut, P. S. Littman and G. J. D'Angio 1497

Preliminary Report on 10 Patients Treated With Radiotherapy After Radical Prostatectomy for Isolated Elevation of Serum PSA Levels
M. E. Keisch, C. A. Perez, P. W. Grigsby, W. C. Bauer and W. Catalona 1503

Influence of Radiation on the Blood-Brain Barrier and Optimum Time of Chemotherapy
D.-X. Qin, R. Zheng, J. Tang, J.-X. Li and Y.-H. Hu 1507

● *TECHNICAL INNOVATIONS AND NOTES*

Dose Equivalence for High-Dose-Rate to Low-Dose-Rate Intracavitary Irradiation in the Treatment of Cancer of the Uterine Cervix
Y. Akine, N. Tokita, T. Ogino, Y. Kajiura, I. Tsukiyama and S. Egawa 1511

The Effect of a Dynamic Wedge in the Medial Tangential Field Upon the Contralateral Breast Dose
B. J. McParland 1515

The Use of a Prosthetic Tissue Expander to Displace Bowel From a Brachytherapy Implant Site
J. G. Armstrong, L. B. Harrison, M. Dattoli, R. Concepcion, B. D. Minsky and J. Fortner 1521

Three-Dimensional Compensating Filters Using Magnetic Resonance Images
W. L. Kennedy, M. Boles, H. Lepkowski and H. Wu 1525

Improved Dose Homogeneity in the Head and Neck Using Computer Controlled Radiation Therapy
R. G. Lane, M. D. Loyd, C. H. Chow, E. Ekwelundu and I. I. Rosen 1531

Modeling of Dose to Tumor and Normal Tissue From Intraperitoneal Radioimmunotherapy With Alpha and Beta Emitters
J. C. Roeske, G. T. Y. Chen, R. W. Atcher, C. A. Pelizzari, J. Rotmensch, D. Haraf, A. Montag and R. R. Weichselbaum 1539

Treatment Verification Using a Computer Workstation
M. S. Weinhous 1549

Uncertainty in Dose Estimation for Gynecological Implants
H. Chow, R. G. Lane and I. I. Rosen 1555

Evaluation of Time-Dose and Fractionation for ^{252}Cf Neutrons in Preoperative Bulky/Barrel-Cervix Carcinoma Radiotherapy
Y. Maruyama and J. Wierzbicki 1561

● *ONCOLOGY INTELLIGENCE*

Individual Variation and Dose Dependency in the Progression Rate of Skin Telangiectasia
I. Turesson 1569

● *SPECIAL FEATURES*

Cancer Epidemiology: Implications for Prevention and Treatment
R. Flamant 1575

Effects of Ionizing Radiation on the Blood Brain Barrier Permeability to Pharmacologically Active Substances
T. Trnovec, Z. Kállay and Š. Bezek 1581

Non-Standard CT Scanners: Their Role in Radiotherapy
S. Webb 1589

● *OUR HISTORY AND HERITAGE*

Gioacchino Failla
J. A. del Regato 1609

● *EDITORIALS*

Will Altered Fraction Schemes Alter the Future?
J. S. Cooper 1621

Accelerated Radiation Therapy in Small Cell Lung Cancer: Rationale and Limitation in Its Utility
N. C. Choi 1623

● *CORRESPONDENCE*

Management of Stages III and IV Head and Neck Cancer
W. M. Mendenhall and J. T. Parsons 1627

Response to Mendenhall and Parsons
F. Sanchíz, A. Millá and J. Torner 1627

O_2 Levels in Normal Tissues
A. E. Brewster and J. L. Moore 1628

Endobronchial Irradiation
W. Alberti 1628

Endobronchial Irradiation: Is HDR Better?
M. P. Mehta 1629

The Use of Abbreviations in the Journal
A. M. Herskovic 1629

● *AWARD* 1631

● *MEETINGS* 1633

● *ONCOLIT* A1

● *VOLUME 19 LIST OF CONTENTS, KEY WORD AND AUTHOR INDEXES* A7